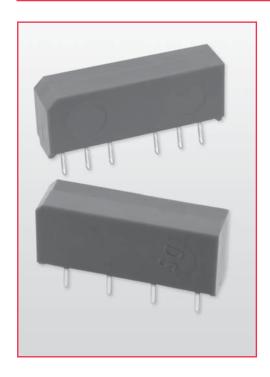
## 9000 Series / Molded SIP Reed Relays



**IDENTIFIES PIN #1** 

.760 Max. (19.3)

.780 Max.

#### **High Performance SIP Reed Relays**

The SIP relay is the industry standard when high reliability and consistent performance are desired in a compact package. The 9001 and 9002 are high performance relays ideally suited for Automatic Test Equipment, Instrumentation, RF and Telecommunications applications. The specification tables allow you to select the appropriate relay for your application.

#### Series Features

- High Insulation Resistance  $10^{12} \Omega$  minimum ( $10^{13} \Omega$  typical)
- High reliability, hermetically sealed contacts for long life (tested to 1 Billion Operations)
- High dielectric strength available, consult factory
- High speed switching compared to electromechanical relays
- Molded thermoset body on integral lead frame design
- Coaxial Shield for 50  $\Omega$  impedance and switching of fast rise time digital pulses - 9002 only
- Optional Coil Suppression Diode protects coil drive circuits
- UL File # E67117, CSA File # LR 28537

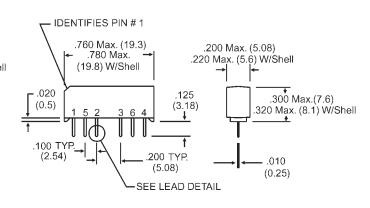




200 Max. (5.08) (19.8) W/Shell .220 Max. (5.6) W/Shell .125 (3.18).300 Max.(7.6) 320 Max. (8.1) W/Shell .020 REF 010 (0.25).200 (TYP.) (5.08)

SEE LEAD DETAIL

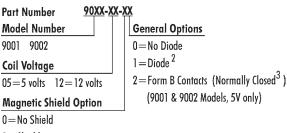
#### Model 9002



Dimensions in Inches (Millimeters)



## **Ordering Information**



1 = Shield

# 9000 Series / Molded SIP Reed Relays

| <b>Model Number</b>                       |                                      |                    | 9001 2           | 9002 2           |
|---|--------------------------------------|--------------------|------------------|------------------|
| Parameters                                | <b>Test Conditions</b>               | Units              | 4 Pin SIP        | 6 Pin SIP        |
| COIL SPECS.                               |                                      |                    |                  |                  |
| Nom. Coil Voltage                         |                                      | VDC                | 5 12             | 5 12             |
| Max. Coil Voltage                         |                                      | VDC                | 6.5 15.0         | 6.5 15.0         |
| Coil Resistance                           | +/- 10%, 25° C                       | Ω                  | 500 1000         | 350 750          |
| Operate Voltage                           | Must Operate by                      | VDC - Max.         | 3.75 9.0         | 3.75 9.0         |
| Release Voltage                           | Must Release by                      | VDC - Min.         | 0.4 1.0          | 0.4 1.0          |
| CONTACT RATINGS                           |                                      |                    |                  |                  |
| Switching Voltage                         | Max DC/Peak AC Resist.               | Volts              | 200              | 200              |
| Switching Current                         | Max DC/Peak AC Resist.               | Amps               | 0.5              | 0.5              |
| Carry Current                             | Max DC/Peak AC Resist.               | Amps               | 1.5              | 1.5              |
| Contact Rating                            | Max DC/Peak AC Resist.               | Watts              | 10               | 10               |
| Life Expectancy-Typical <sup>1</sup>      | Signal Level 1.0V, 10.0mA            | $\times 10^6$ Ops. | 1000             | 1000             |
| Static Contact<br>Resistance (max. init.) | 50mV, 10mA                           | Ω                  | 0.150            | 0.150            |
| Dynamic Contact                           | 0.5V, 50mA                           | Ω                  |                  |                  |
| Resistance (max. init.)                   | at 100 Hz, 1.5 msec                  |                    | 0.200            | 0.200            |
| RELAY                                     |                                      |                    |                  |                  |
| SPECIFICATIONS                            |                                      |                    |                  |                  |
| Insulation Resistance                     | Between all Isolated Pins            | Ω                  | 10 <sup>12</sup> | 10 <sup>12</sup> |
| (minimum)                                 | at 100V, 25°C, 40% RH                | Г                  | 0.7              |                  |
| Capacitance - Typical                     | No Shield                            | pF<br>F            | 0.7              | -                |
| Across Open Contacts                      | Shield Floating                      | pF                 | -                | 0.8<br>0.1       |
|   | Shield Guarding                      | pF                 | -                |                  |
| Open Contact to Coil                      | No Shield                            | pF                 | 1.4              | -                |
|   | Shield Floating                      | pF                 | -                | 1.4              |
|   | Shield Guarding                      | pF                 | -                | 0.5              |
| Contact to Shield                         | Contacts Open, Shield<br>Floating    | pF                 | -                | 1.4              |
| Dielectric Strength                       | Between Contacts                     | VDC/peak AC        | 300              | 300              |
| (minimum)                                 | Contacts to Shield                   | VDC/peak AC        | -                | 1500             |
|   | Contacts/Shield to Coil              | VDC/peak AC        | 1500             | 1500             |
| Operate Time - including                  | At Nominal Coil Voltage,             |                    |                  |                  |
| bounce - Typical                          | 30 Hz Square Wave                    | msec.              | 0.35             | 0.35             |
| Release Time - Typical                    | Zener-Diode Suppression <sup>4</sup> | msec.              | 0.1              | 0.1              |
|   |                                      |                    | 1                | 1 5              |

Top View: Dot stamped on relay refers to pin #1 Grid = .1"x.1"(2.54mm x 2.54mm)

#### Notes:

<sup>1</sup>Consult factory for life expectancy at other switching

## **Environmental Ratings:**

Storage Temp: -35°C to +100°C; Operating Temp: -20°C to +85°C Solder Temp: 270°C max; 10 sec. max

The operate and release voltage and the coil resistance are specified at 25°C. These values vary by approximately 0.4% / °C as the ambient temperature varies.

Vibration: 20 G's to 2000 Hz; Shock: 50 G's

<sup>&</sup>lt;sup>2</sup>Optional diode is connected to pin #2 (+) and pin #3(-). Correct coil polarity must be observed. <sup>3</sup>9000 series part numbers designated with Form B contacts, these relays contain bias magnets. Correct coil polarity must be observed.

<sup>&</sup>lt;sup>4</sup>Consists of 56V Zener diode and 1N4148 diode in series, connected in parallel with coil.